

Social learning as approach for teacher professional development; how well does it suit them?

Citation for published version (APA):

Meijs, C., Prinsen, F., & De Laat, M. (2016). Social learning as approach for teacher professional development; how well does it suit them? *Educational Media International*, 53, 85-102.
<https://doi.org/10.1080/09523987.2016.1211333>

DOI:

[10.1080/09523987.2016.1211333](https://doi.org/10.1080/09523987.2016.1211333)

Document status and date:

Published: 01/01/2016

Document Version:

Publisher's PDF, also known as Version of record

Document license:

CC BY

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

<https://www.ou.nl/taverne-agreement>

Take down policy

If you believe that this document breaches copyright please contact us at:

pure-support@ou.nl

providing details and we will investigate your claim.

Downloaded from <https://research.ou.nl/> on date: 05 May. 2023

Open Universiteit
www.ou.nl





Social learning as approach for teacher professional development; how well does it suit them?

Celeste Meijs, Fleur R. Prinsen & Maarten F. de Laat

To cite this article: Celeste Meijs, Fleur R. Prinsen & Maarten F. de Laat (2016) Social learning as approach for teacher professional development; how well does it suit them?, Educational Media International, 53:2, 85-102, DOI: [10.1080/09523987.2016.1211333](https://doi.org/10.1080/09523987.2016.1211333)

To link to this article: <http://dx.doi.org/10.1080/09523987.2016.1211333>



Published online: 27 Jul 2016.



Submit your article to this journal [↗](#)



Article views: 17



View related articles [↗](#)



View Crossmark data [↗](#)

Social learning as approach for teacher professional development; how well does it suit them?

Celeste Meijs, Fleur R. Prinsen and Maarten F. de Laat

Welten Institute, Open University, Heerlen, The Netherlands

ABSTRACT

Learning from others has been reported as a productive approach for teacher Professional Development (PD) and is seen as a valuable addition to formal PD. Specific insights into whether social learning suits teachers is still lacking. Therefore, the aim of the current study was to develop and apply an instrument to assess social learning mindedness of teachers. A questionnaire called the “Quiz: Social learning, how does it suit me?” was developed and its reliability and factor structure were explored. A total of 110 teachers, ranging from primary school to pre-university education filled out the Quiz. Results indicated that the teachers were already quite social learning minded; they were positively oriented towards social learning. Social learning mindedness encompassed five underlying factors including counteracting social-learning preferences, teachers’ opinions and preferences related to learning from colleagues/others, their orientation towards collaboration in new approaches to PD, an autonomy factor, and a more general attitude towards knowledge dissemination. Mostly, teachers like to explain and share their knowledge, like to collaborate with others to enhance their knowledge and ask others for advice if they have a problem. At the same time, they want some control over their PD (e.g. the outcomes). The teachers in this sample did not show much preferences that would counteract social learning, leading to the conclusion that social learning suits teachers as a form of PD. The Quiz, which is accessible online (in Dutch), is a useful tool for teachers to quickly get acquainted with social learning.

ARTICLE HISTORY

Received 15 June 2016

Accepted 2 July 2016

KEYWORDS

Social learning; community of practice; networked learning; teacher PD

Introduction

In the area of professional development (PD), teachers have long been approached as passive consumers of pre-packaged knowledge. Illustration of this is discussions about professional learning at work, that still reflect mostly organisational terminology (e.g. staff training, staff development, performance review) and developmental terms (e.g. PD), rather than more active terms, like learning. According to Webster-Wright (2009, p. 713), in a review about the reframing of PD, the discourse reflects that: “something is done to the professional. That is, professionals are in need of ‘training’ or ‘developing’ through knowledge being ‘delivered’ to them in courses”. Teachers are assumed to absorb information presented to them, even

though they often perceive PD to be fragmented, disconnected and irrelevant to the real problems of their classroom practice (Lieberman & Pointer Mace, 2010). It is widely recognised that the current mode of providing PD needs a radical change (Lieberman & Pointer Mace, 2010). The traditional workshops are becoming less effective in our changing, busy society (Hunzicker, 2011). One-shot workshops fall short mostly because they lack connection to the classroom (Darling-Hammond, Chung-Wei, Andree, Richardson, & Orphanos, 2009). Wilson and Berne (1991) state that teacher learning is a patchwork of opportunities, ranging from formal to informal, from mandatory to voluntary, and from planned to serendipitous. And the awareness arises that teachers need to be in the centre of their own PD (Lieberman & Wood, 2002a). It is now clear that the focus is shifting from workshops, general courses and seminars, to learning in the workplace and to teachers building their own professional capital (Hargreaves & Fullan, 2012).

One key aspect that appears under-recognised is that learning is already an integral part of workplace practices (Hodkinson & Hodkinson, 2005). Boud and Hager (2012) strongly urge us to start seeing learning as a normal part of working; teachers learn during their daily work by handling the problems they encounter and the challenges they face. They state that more learning occurs when teachers draw on the expertise of their peers and others, compared with formalised activities. Lovett and Cameron (2011) also provide evidence in favour of this in a study that states that even though 40% of the influences on teachers' and leaders' PD comes from books, seminars and articles, 60% comes from associations with colleagues, their experiences and associations with students and their families, and their everyday school-based experience. Learning from other teachers has been reported to be a productive approach for PD (Dresner & Worley, 2006; Lieberman & Wood, 2002a, 2002b), and has been seen as a valuable addition to formal PD (van Amersfoort, Korenhof, Moolenaar, & De Laat, 2011).

Internationally, there is growing attention to learning in professional communities and to networked learning. Lieberman and Pointer Mace (2010, p. 80) describe that "the development of learning communities has become a worldwide focus for teacher learning". Programmes or projects in which teachers become part of professional communities have provided evidence of meaningful changes in local knowledge, the exploration of solutions to problems and practices that occur in particular contexts (Katz & Earl, 2006; Lieberman & Wood, 2002a; O'Brien, Varga-Atkins, Burton, Campbell, & Qualter, 2008), deepening of teachers' knowledge, skill-building and instructional improvements (Darling-Hammond et al., 2009). Additionally, learning in networks has been reported to be beneficial for teachers (Goodyear, Banks, Hodgson, & McConnel, 2004; Harasim, Hiltz, Teles, & Turoff, 1995; Lieberman & Wood, 2002a) and creates major opportunities for PD (De Bruijn, 2008; Gellert, 2003; Lieberman & Wood, 2002b).

In literature, several different names have been used in the study of social learning or learning in teams in PD. Congruous with Wenger, Trayner, and de Laat (2011), we classify communities of practice and learning networks as two examples of social structures in which learning takes place. On the one hand, in (learning) networks, the focus is on the connections between members, their relationships and personal interactions. (Learning) networks are aimed at the flow of information, joint problem solving, knowledge creation and learning. On the other hand, the concept of community emphasises the shared identity that is developed around a common topic or problem. It focuses on the collective intention to work together, on a common domain of knowledge in which to learn. Ideally, a combination of

both community – and (learning) network processes take place because this seems to lead to the best social learning (for more information, see Wenger et al., 2011).

Next to the different indications for the social structures in which we learn, many different definitions of social learning have been used in the literature (for an overview, see Reed et al., 2010). The definition we apply incorporates three key, required, elements for learning to be classified as social learning. First, learning has to occur through social interactions and processes between members of a learning network/community, school or other institute. These contacts can be face-to-face but can also take place via technologies such as the Internet. Second, the learning has to spread beyond a specific learner, the way knowledge spreads in a community of practice or a learning network, or even throughout the school as whole and beyond. And third, the learning experience has to lead to an actual change in the understandings of the learner; for instance, a new procedure is applied, or a new insight into a problem has emerged (Reed et al., 2010).

Despite the many positive outcomes of several studies into the effects of social learning described above, there is still much unknown about teachers' social learning mindedness. Personal opinions regarding and stances, behaviour and motivations preferences and attitudes towards social learning have been studied only sparsely. Lieberman and Wood (2002a) described that teachers that joined a community for PD were enthusiastic about the results. O'Brien et al. (2008) reported that school professionals and (head) teachers thought that their learning network did not contribute to their daily practice, but that it contributed to their PD over time. And van Amersfoort et al. (2011) reported that teachers thought that networked learning made learning more enjoyable. A systematic study into preferences and attitudes towards PD and social learning, and thus into how social learning minded teachers are, has to our knowledge not yet been executed.

Studies into social learning are most often qualitative in nature; making use of instruments such as interviews or case studies, that lead to interesting findings but are often small scale and fragmented (Borko, 2004). To be able to gain systematic insights, a quantitative study is needed. An advantage of the use of a quantitative instrument (e.g. a standardised questionnaire) is that more teachers can be reached, and they all answer the same questions and follow the same procedures. Since such an instrument was not available yet, we developed one called the "Quiz: Social learning, how does it suit me?" The Quiz had the goal to: (a) demonstrate the social learning mindedness of teachers, and (b) to serve as a guide to teachers that are "starting" social learners. The quiz can help teachers get acquainted with social learning, provide educational managers with information to better guide PD and can facilitate discussions in communities of teachers about their levels of social learning mindedness and preferences. This enhances openness, which, in turn, enhances social learning.

The Quiz was developed in two versions: a paper-and-pencil version and an online tool (with an immediate presentation of the results) so it can be used in face-to-face meetings and as well as in online interactions of learning networks or communities.

Theoretical and empirical background of the development of items of the quiz

In this section, we will present how the items of the Quiz were developed based on the existing literature on social learning. We clustered items into aspects that refer to common topics that are related to PD and social learning.

Aspects related to forms of PD

Teachers do not always accept traditional PD forms and want to replace these with new, meaningful forms of PD (Wilson & Berne, 1991). Social learning is seen a relatively new form of learning within the domain of PD, and might lead to innovations. Innovations bring “something new” within a context, so benefits can be gained from them (De Jong & Den Hartog, 2005). Performing new or challenging tasks during practice might lead to enhanced work-related learning (Doornbos, Simons, & Denessen, 2008). However, social learners that are just starting off might not have yet experienced the gains of social learning. Thus, we explored whether teachers are willing to try out new forms of PD, even without exactly knowing the gains (item 15; see Table 3).

In social learning, meeting each other (face-to-face or online) is a prerequisite for the production of results. To explore if and how this “suits” teachers, we asked whether they might prefer a course or a seminar over meetings with colleagues (item 12; see Table 3).

In social learning, sharing of tacit (not explicit) knowledge is central. This mostly requires face-to-face or online meetings. However, more explicit knowledge can be shared without actually having to meet each other, as also happens in Networks of Practice (NoP) (Duguid, 2005). Not only can computers be used for meetings or email contacts, they can also be used to find new information, through contacts or via Internet. Thus, computers can be useful for social learning. Van Berkum (2009) even states that the use of e-mail, social communities and other information media will enhance the number of contacts of a participant. More contacts means more social capital because participants can make more use of each other’s knowledge and information that becomes more accessible. Therefore, we also explored whether the participants like PD programmes that involve the use of computers (item 8; see Table 3).

Traditional forms of PD are often obliged activities (e.g. a scheduled study-day or workshop), whereas social learning can be more informally organised. It often happens spontaneously, and there is more freedom in what, how and when there will be learned. To explore whether teachers have a preference for obliged PD activities, this was included in the Quiz (item 14; see Table 3).

Social learning requires the teacher to be an active player when acquiring knowledge. Knowledge is created within the networks (Earl & Katz, 2007). This is in contrast with the more traditional form of PD that requires a more passive role, in which the teacher only has to absorb knowledge (Lieberman & Pointer Mace, 2010). Therefore, we explored whether teachers preferred passive forms of PD over active (item 6; see Table 3).

Aspects related to collaboration

One of the core elements of social learning is collaboration with other participants (colleagues). Katz and Earl (2006) described collaboration as an intensive interaction, in which teachers (and other professionals) open up their beliefs and practices to investigation and debate. This would enhance their own practice as well as help build their profession. Hunzicker (2011) described that collaboration during PD makes it more effective because it engages teachers in both active and interactive learning. Learning becomes active if teachers engage physically, cognitively and emotionally, through, for instance, discussions. Learning becomes interactive when teachers share problems, viewpoints and ideas and work together

towards solutions. This can be achieved by learning from and with each other, which is a key feature of social learning. People engaging in networked learning communities will create new ideas, new information and new skills (Earl & Katz, 2007). The findings above led us to explore whether teachers like to collaborate with others in order to enhance their knowledge (item 1; see Table 3), and whether they like to share and explain their knowledge to and with others (item 4; see Table 3). Since it might also be that teachers prefer to work alone (which then could counteract social learning), we explored this as an option (item 13; see Table 3).

As a member of a learning network (or community), the contacts you have with other people make it easier to keep up with new developments and, possibly, new innovations (De Jong & Den Hartog, 2005). Additionally, participation in a (learning) network can have a positive influence on work-related learning (Doornbos et al., 2008), for instance, by the promotion of collaboration among members and they provide the sharing of interests, work and struggles (Lieberman & Wood, 2002a). In working together, the members of a (learning) network create new knowledge and share this with others, which can eventually lead to the development of new skills (Earl & Katz, 2007). A learning network (or community) is not only important for the PD of the participant, but provides profit for the organisation (or school) as well. Networks constitute social capital; the “hidden” knowledge that all members of an organisation share (Cross & Parker, 2004; Cross, Parker, & Sasson, 2003; Duguid, 2005; Moolenaar, 2010). The size of a (learning) network (or community) is related to the amount of social capital because more participants may exchange and build knowledge. This might even play out globally, as in the case of global NoP (Duguid, 2005). But at a smaller scale, the optimal usage of the (learning) networks (or communities) within an organisation can lead to the development of the organisation as a whole (Van Berkum, 2009). Therefore, we explored whether the teachers were part of a learning network (item 7; see Table 3).

Aspects of learning from others

Teachers that form professional communities, recognise the power of learning as a social phenomenon (Lieberman & Wood, 2002a). When members of (learning) networks/communities share methods, materials, ideas and opinions, they make their practices accessible to others. Teachers can ask each other questions and request each other’s help. Teachers expect help from each other, and also have sympathy and concern for one another (Katz & Earl, 2006). Furthermore, teachers indicate they see networked learning as a valuable addition to formal training (van Amersfoort et al., 2011). The perceptions that teachers have about ways in which their learning is most effective are important, so this led us to explore several ways in which teachers can be mindful of social learning, such as: whether they think that they can learn more from colleagues and in practice than from traditional development activities (item 5; see Table 3), whether they preferred to learn from colleagues (item 10; see Table 3), and whether they asked other for advice if they encounter problems (item 11; see Table 3).

Aspects of autonomy

Social learning is not like a certified course and is not planned by management, but mostly occurs spontaneously during practice or may occur more deliberately during self-planned meetings. Another core characteristic of social learning is that participants decide for

themselves whether they want to participate or not, what the learning will be about, when they will meet and how they meet (face-to-face or via email, etc.). Thus, in social learning, teachers have more control or autonomy. The Self Determination Theory described by Ryan and Deci (2000) states that autonomy is one of key factors fuelling motivation. And a study by Hunzicker (2011) clearly shows that if teachers have a say in their own PD (direction and pace), they function best. In many high-achieving nations, teacher collaboration is already the norm and teachers influence the design of their own professional learning (Darling-Hammond et al., 2009). Autonomy creates an environment for exploration, information exchange, testing and trying out. If the working conditions are too strictly defined, this might be detrimental for the degree of challenge people experience in their work. This might, in turn, lead to less innovative behaviour (De Jong & Den Hartog, 2005). Van Berkum (2009) even states that obligations negatively influence the motivation to share knowledge or to give others access to knowledge. More productivity is expected when teachers are in charge of their own PD (Wilson & Berne, 1991). When teachers are relatively more involved in educational decision-making, this is related to more stable and productive professional communities (Darling-Hammond et al., 2009). The findings above led us to explore whether teachers prefer to choose their own topics for PD (item 3; Table 3).

Aspects of control

Social learning may occur unintentional and not deliberate during practice, or more intentional and deliberate if groups are formed to collaborate in the study of a certain topic. However, the process of the learning and the outcomes are, in contrast to most formal courses, not predefined. To explore teachers positions regarding the possible lack of certainty about de social learning processes, we asked whether teachers wanted to know exactly how they were going to learn (item 2; see Table 3) and whether they preferred to know exactly what the outcomes and benefits would be before they started (item 9; see Table 3).

Social learning mindedness

All these aspects of the Quiz explore social learning mindedness in the context of teacher professional development. We aimed to develop a reliable instrument to measure them. These aspects of social learning mindedness might be interrelated and based on communalities, and we will explore the possibility of underlying latent factors.

There are some indications that preferences and attitudes towards social learning differ for teachers that work in various sectors of education (De Jong & Den Hartog, 2005). O'Brien et al. (2008) reported different attitudes towards networked learning for primary and secondary school staff. They studied the processes involved in establishing effective learning network and their role in promoting collaborative PD to improve learning of both teachers and pupils. Overall, primary school staff had higher expectations of the benefits of networked learning than secondary school staff, probably because the primary school teacher had more background knowledge of the learning network-project (for more information, see: O'Brien et al., 2008). To get more insight in these aspects of social learning mindedness, teachers and other school-staff from various sectors of employment, ranging from primary schools to University were surveyed.

Table 1. The sector in which the participants worked.

Sector	<i>N</i>
Primary education	13
Secondary vocational education (Dutch: MBO)	34
Higher general secondary education (Dutch: HAVO) and pre-university education (Dutch: VWO)	46
Higher education (higher secondary vocational education (Dutch: HBO) and university)	15
Unknown	2
Total	110

We formulated the following research questions

- (1) How social learning minded are teachers (What are their preferences and attitudes towards social learning as form of PD, and how to these aspects relate to each other)?
- (2) Are there differences in social learning mindedness and the preferences and attitudes between teachers from various school sectors?

Method

Participants

The Quiz was completed by 110 Dutch participants, which we will refer to as “teachers”, even though some participants were school staff members (e.g. management or special care advisors), involved at that time in the same PD programmes, administered by Welten Institute (Research Centre for Learning, Teaching and Technology), Open University (see Table 1 for the spread over education sectors).

Procedure

The Quiz was printed on an A-4 form, with on the front page the 15 items. Answers could be given by checking the boxes behind the items belonging to five answer categories: (1) Strongly disagree, (2) Slightly disagree, (3) Neutral, (4) Slightly agree, (5) Strongly agree. To prevent tendencies in answering, eight items referred to facilitating aspects and seven items referred to counteracting aspects. Teachers could get a first impression of their score by adding up points. Their total score corresponded with three types (printed on the back side of the form) that differ in their preferences and attitudes towards social learning; “Social learning does not suit me” (sum score 15–45), “Slightly social learning minded” (sum score 46–60) and “Social learner at heart” (sum score 61–75). For the calculation of sum scores, the scores on the items that inquired counteracting aspects were reversed. The types were described with a comic-picture, a fake name and a description of a fictitious person with statements regarding aspects of social learning. The specific formulations used in the Quiz varied slightly according to the local context and situation within the schools (e.g. in some schools, they spoke of networked learning, in others, they spoke of social learning), but the items still referred to the same concept of social learning and measured a degree of social learning mindedness.

Table 2. Structure matrix.

	Component				
	1	2	3	4	5
Item 12	.757				
Item 6	.688				
Item 14	.565				
Item 2	.564			-.493	
Item 9	.518			-.434	-.445
Item 8	.509				
Item 13	.505				-.411
Item 10		.794			
Item 5		.729			
Item 7			.765		
Item 1			.708		
Item 11			.650		
Item 15			.645		
Item 3				-.774	
Item 4					.785

The researcher collected the Quiz's and processed the data using IBM SPSS Statistics 20. Note: the Quiz can be administered via computer. The score is automatically calculated (see <http://srv-hrl-194v.web.pwo.ou.nl/mrlWeb/mrlWeb.dll?l.Project=QUIZT1> only in Dutch).

Analyses

The reliability of the Quiz was checked by calculating Cronbach's α (after the items that inquired counteracting aspects were reversed). The exploration of possible underlying factors was studied by a Principal Component Analysis. Differences between the factors were studied by means of a General Linear Model, multivariate analyses, with the mean factor scores as outcome variables.

Social learning mindedness of teachers in the context of PD was studied in two steps. First, we studied whether social learning generally suited the teachers, by calculating the sum of the scores on the items. We used the reversed scores on the counteracting items. Second, we explored social learning mindedness in the context of PD, by calculating the mean scores per item. To indicate deviant scores, we set a mean score of 3 as the cut off point for considering an item as deviant because a score of 3 is the mean of all possible scores on a scale of 1–5 and represents "Neutral". For the counteracting aspects, a score above 3 is deviant and for the facilitating factors, a score below 3 is deviant. Additionally, we set a mean score of 4.5 as the cut off point for extremely high scores for facilitating aspects and a mean score of 1.5 as the cut off point for the counteracting aspects. Differences between factors were studied by means of 10 Paired-samples *t*-tests with the factors as paired variables. The α -level was set to .01 to correct for Type-I errors.

Differences between teachers from various sectors of education on (a) general social learning mindedness and (b) the factors, were studied by means of Several Independent Samples Tests (Kruskal-Wallis test) with sector as grouping variable and social learning mindedness type and mean factor score as test variables (α level .05). Sector was defined as: PO ($n = 13$), MBO ($n = 34$), HAVO/VWO ($n = 46$) and a higher education (combined category for HBO and University; $n = 15$; see Table 1).

Results

Reliability

Cronbach's α calculated for the Quiz was .701 ($n = 110$; 15 items), which can be rated as adequate because this is .1 above the lowest boundary for complex concepts (Baarda, De Goede, & Van Dijkum, 2007; Field, 2009), such as social learning mindedness. Field (2009) reports that it is unrealistic to expect a Cronbach's α above .700 if the measured concepts are very diverse, as is the case with the preferences and attitudes related to PD and social learning, and vary according to background of the aspects. Since the Cronbach's α is sufficient, the items of the Quiz can be summed and interpreted as one social learning mindedness scale. We explored the reliability of the scale after deletion of certain items, and found two items that, if removed, would lead to a higher Cronbach's α (items 3 and 5). However, deletion of these items leads to a maximum increase of .0200–.721, and we decided this was not worth losing the items and what they represent.

Factor extraction

Principal component Analysis was performed, even though the number of participants was rather low ($n = 110$). De rule of thumb is 10–15 respondents per item. This implies at least 150 participants were needed to able to perform a factor analysis. However, the Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) showed a value of .700, which is rated as mediocre to good. This measure indicates that factor analysis could be performed. Most values on the diagonal axis of the anti-image matrix were above .5, which is the lowest boundary. The only exception was item 3, with a value of .428. We chose to include this item, based on theoretical grounds, because it reflects an important aspect of social learning, namely the autonomy to determine the topic of the PD. Additionally, the Barlett's test of Sphericity was significant (.001), which is another indication that performing the factor analysis was justified (for more information regarding factor analyses, see Field, 2009). We chose to perform an oblique rotation (Direct Oblimin) because we expected a correlation between the underlying factors, since all items inquire PD.

Initially, 4 factors were extracted based on the Kaiser criterion (eigen value above 1). However, the number of non-redundant residuals with absolute values above .05 was 55%. This is 5% above the limitation of 50%. Additionally, if there are around the 100 participants, then the communalities should be around .6. This was not achieved for several items. Hence, it would be better not to comply to Kaisers criterion. Based on the Scree plot, which showed a point of inflexion on 5 factors, and on the fact that the communalities increase if the number of factors increase, the advice was to extract more factors, in this case 5. If we extracted 5 factors, the communalities increased (between 5.19 and 7.14), but the number of non-redundant residuals with absolute values above .05 increased to 61%. Even though this increases the non-redundant residuals, we choose to extract five factors because the communalities were better and this was what the Scree-plot (see Figure 1) indicated. Thus, the exploratory factor analysis resulted in five distinct factors. If the sample exists in 100 participants, then the factor loadings would best be minimal .512 (see Table 2). Our sample comprises 110 participants and therefore, we included factor loadings of .505 in our results. Lower factor loadings were not interpreted, but may give indications on weak correlations between items.

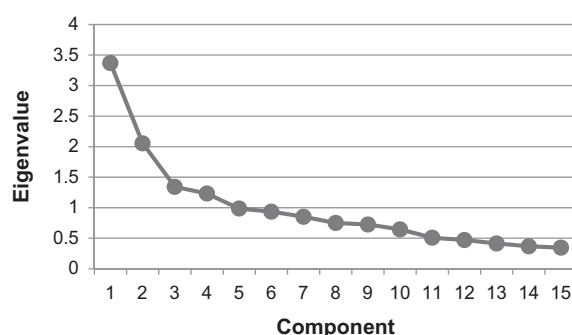


Figure 1. Scree plot.

If we want to consider the factors with multiple items as scales, the reliability of these factors needs to be checked. For each factor that comprised more than one item, Cronbach's α was calculated and showed values that can be tolerated, respectively .689 for Factor 1, .612 for Factor 2 and .633 for Factor 3. Even though these reliability values were below .700, Field (2009) states that values above .600 are acceptable if the construct measured is complex. Thus, the items within the factors can be summed to calculate mean factor scores.

Teachers' social learning mindedness turned out to encompass five complementary factors (see also Tables 2 and 3):

- (1) Counteracting preferences (factor 1; 7 items),
- (2) Learning from colleagues/others (factor 2; 2 items),
- (3) Collaboration in PD (factor 3; 4 items),
- (4) Autonomy in PD choices (factor 4; 1 item), and
- (5) Knowledge dissemination (factor 5; 1 item).

Since the structure matrix (Table 2) showed some items loading on several components, we will discuss these cross-loadings shortly below.

Two aspects that loaded on factor 1 represent aspects of control in social learning processes (item 9; "I want to know exactly what the outcomes and benefits of the PD are before I start", and item 2; "I want to know exactly how I am going to learn during my PD"). These items also loaded on Factor 4: Autonomy. This suggests that autonomy and control are related, and future research should explore this relation in more depth. Still, it seemed that in the factor analysis, the counteractive nature of these control-items turned out taking precedence over their relation with autonomy. Item 9 (see above), together with item 13 ("I prefer to work alone") also loaded on Factor 5 (orientation towards knowledge dissemination). The relation between the preference for working alone and a positive orientation towards sharing and explaining knowledge is understandable, because the two aspects contradict each other (high score on one aspect should relate to a low score on the other aspect). The relation with item 9 is less clear, and needs further exploration.

Factor 2 comprises items which indicate a preference for learning from others over static, traditional PD material. We expected that item 11 ("If I have a problem, I ask others if they have knowledge about it and if they can advise me"), was an aspect of learning from others, but it loaded more on Factor 3 (Collaboration).

Table 3. Mean scores and standard deviations per item and factor, percentage of teachers with a mean score above 3 (“Neutral”), and the text per item.

Factor	Nr	Facilitating (F) or counteracting (C)	Mean (SD)*	% above 3	Item (text)
1	14	C	2.15 (.994)	40.9	I prefer obligatory PD activities over non-obligatory PD activities
	13	C	2.28 (1.158)	44.5	I prefer to work alone
	8	C	2.48 (1.171)	48.2	I don't like PD programmes that involve the use of a computer
	12	C	2.53 (1.106)	52.7	I prefer a course or seminar of a day over meetings with colleagues
	6	C	2.55 (1.037)	51.8	I prefer traditional forms of PD over active methods during PD
	9	C	2.76 (1.188)	60.0	I want to know exactly what the outcomes and benefits of the PD are before I start
	2	C	3.32 (1.219)	74.5	I want to know exactly how I am going to learn during my PD
<i>Factor 1</i>			2.58 (.672)	31.8	
2	5	F	4.01 (1.045)	68.2	In my opinion, learning from colleagues and in practice enhances your knowledge more than traditional PD activities such as courses or reading a book
	10	F	3.55 (.982)	50.9	I prefer to learn from colleagues
<i>Factor 2</i>			3.78 (.861)	74.5	
3	1	F	4.61 (.592)	94.5	I like to collaborate with others in order to enhance my knowledge
	11	F	4.56 (.682)	92.7	If I have a problem, I ask others if they have knowledge about it and if they can advise me
	15	F	4.21 (.791)	80.9	I am motivated to try new approaches of PD, even though I do not immediately know what the gains will be
	7	F	3.71 (1.095)	54.5	I am part of a learning network or professional learning community
<i>Factor 3</i>			4.27 (.553)	94.5	
4	3	F	4.23 (.820)	82.7	I want to decide what topics will be subject of my PD
5	4	F	4.46 (.762)	90.0	I like to share and explain my knowledge with and to others

Notes: Bold values represent the mean factor outcomes, whereas the values not in bold represent item means.

*On each factor from high to low.

Factor 3 comprises items demonstrating preferences related to collaboration with others for PD (such as being part of a (learning) network or community, whether they preferred to ask for advice from others if they encountered a problem, and whether they preferred to collaborate with others to enhance their knowledge). The item stating teacher motivation to try new approaches of PD (without exactly knowing the gains) also loaded on Factor 3. This aspect is somewhat different from the other three aspects, but if the “new approach” was considered “social learning” – which is possible given the title of the Quiz – than the loading of this item on component 3 appears logical.

Social learning mindedness

Table 3 shows all mean scores on the items. These scores were summed to calculate teacher types. Almost one third of teachers might be considered “Social learner at heart” (30%, $n = 33$).

Table 4. Exact statistics paired samples *t*-tests with the factors as paired variables.

Pair	<i>t</i>	df	<i>p</i>	Sign
Factor 1–Factor 2	–11.446	109	<.001	*
Factor 1–Factor 3	–17.672	109	<.001	*
Factor 1–Factor 4	–16.491	109	<.001	*
Factor 1–Factor 5	–17.023	109	<.001	*
Factor 2–Factor 3	–5.515	109	<.001	*
Factor 2–Factor 4	–3.994	109	<.001	*
Factor 2–Factor 5	–6.551	109	<.001	*
Factor 3–Factor 4	.486	109	.628	
Factor 3–Factor 5	–2.490	109	.014	
Factor 4–Factor 5	–2.447	109	.016	

* = significant.

The majority of the teachers can be characterised as “Slightly social learning minded” (66.4%; $n = 73$). A small minority (3.6%, $n = 4$) had scores that indicated that social learning did not suit them.

At the item level, the overall mean scores similarly suggested that the teachers had at least “Neutral” preferences or attitudes towards these aspects of social learning in the context of PD (see Table 3). One item’s score that was deviant from the mean was the item stating “I want to know exactly how I am going to learn during my PD”; 74.5% of the teachers scored 3 or higher on this item, suggesting that the teachers preferred to know in advance how they are going to learn. Extremely high item scores were found for the item stating “I like to collaborate with others in order to enhance my knowledge” (94.5% of the teachers had a score above 4.5) and the item stating “If I have a problem, I ask others if they have knowledge about it and if they can advise me” (92.7% of the teachers had a score above 4.5).

Paired Samples *t*-tests showed significant differences between all but three factor pairs (see Table 4 for the exact statistics). Factor 1 (*Counteracting preferences*) had the lowest mean score, Factor 2 (*Learning from colleagues/others*) had a higher mean score than Factor 1 but a lower mean score than the other three Factors. Factors 3 (*Collaboration and PD*), 4 (*Autonomy in PD choices*), and 5 (*Knowledge dissemination*) did not differ in mean scores.

Figure 2 shows that the participants scored highest on their orientation towards “Knowledge dissemination”, “Autonomy”, and “Collaboration and PD”. Lower scores were attained on their opinions and preferences related to “Learning from colleagues/others”, and they scored lowest on the “Counteracting aspects of PD and the organization thereof”. We would want scores on factor 1 to be low (since these are counteractive), but the lower (still, positive) mean score on factor 2 ($m = 3.78$; see Figure 2) indicates that teachers do not always have positive opinions and preferences towards learning from colleagues/others (e.g. they do not always think that learning from colleagues and in practice enhances knowledge more than traditional PD activities).

Sector effects

No significant effects for sector were found on social learning mindedness type (Kruskal–Wallis test $\chi^2 = 5.355$, $df = 3$, $p = .148$). No significant effects for sector were found for the factors (Kruskal–Wallis test $\chi^2 = 5.694$, $df = 3$, $p = .127$, Kruskal–Wallis test $\chi^2 = 6.585$, $df = 3$, $p = .086$, Kruskal–Wallis test $\chi^2 = 7.089$, $df = 3$, $p = .069$, Kruskal–Wallis test $\chi^2 = 3.703$, $df = 3$, $p = .292$, Kruskal–Wallis test $\chi^2 = 2.633$, $df = 3$, $p = .452$). Thus, teachers employed in all

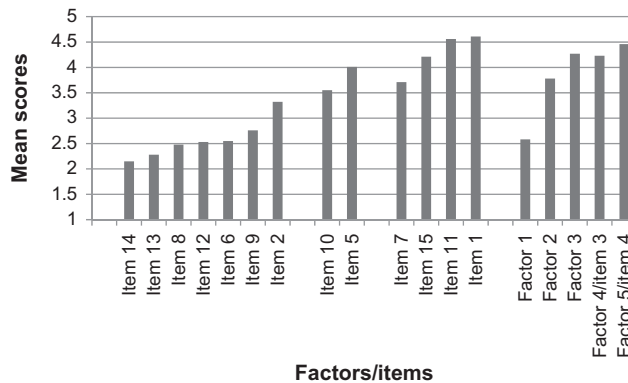


Figure 2. Mean scores and standard deviation per item and clustered per factor. Note that the items: 14, 13, 8, 12, 6, 9, and 2 and Factor 1 are counteractive factors (above 3 is deviant) and all other items and factors are facilitating factors (below 3 is deviant).

included sectors of education showed the same degree of social learning mindedness and did not differ in underlying factors in preferences and attitudes towards PD and social learning.

Conclusion and discussion

To be able to gain systematic insights into how social learning minded teachers are, a systematic study was necessary in a time in which social learning as a form of PD for teachers is becoming more and more popular. Positive effects of networked learning, professional communities and other collaborations between teachers have been demonstrated, but until now, there was no instrument available to assess the underlying preferences and attitudes. The Quiz which was developed based on previous empirical studies proved to be sufficiently reliable as an instrument. This enabled the calculation of a “sum score”, that indicates a social learning type.

The factor analyses revealed that the Quiz entails five underlying factors, which means social learning mindedness can be described by (1) a factor encompassing counteracting social-learning preferences, (2) a factor capturing opinions and preferences related to learning from colleagues/others, (3) a factor demonstrating teachers’ orientation towards collaboration and new approaches to PD, (4) an autonomy factor, and (5) a factor capturing a general attitude towards knowledge dissemination. The resulting factors show some overlap and some differences with the aspect as initially formulated based on the literature. First, the counteractive aspects formed a latent variable, regardless of the theoretical aspect they refer to. For instance, Item 13 (“I prefer to work alone”) was developed as a negatively formulated item related to “learning from others”; however, because its counteractive formulation it loaded stronger on Factor 1, measuring counteracting preferences. In future studies, maybe only items with facilitating formulations should be used, to explore whether our formulation caused this relationship. Second, items representing collaboration and items representing learning from colleagues/others seem to be distinguished; in which asking others for advice is more related to collaboration than to learning from colleagues. This difference is subtle in formulation, but clear in the factor analyses. Third, autonomy is an aspect

the factor analysis showed to also be related to control. This is an important finding, since autonomy is in turn related to motivation (Ryan & Deci, 2000). The fact that social learning enables the teacher to have more control, could increase motivation for PD. Last, sharing and explaining knowledge to others (knowledge dissemination) turned out to be an independent factor. This probably reflects a general disposition that teachers possess, regardless of their preferences of social learning. Nearly all teachers (90% of the teachers score at least “Neutral” on this aspect) indicated that they liked to share and explain their knowledge. This is a high percentage and we assume that is aspect tapped on the general underlying disposition of being a teacher since this is the core business of teachers in practice. Therefore, this aspect is not related to social learning per se but it reflects a necessary basic behaviour for teaching but for social learning also.

Almost all participating teachers (96.4%) had outcomes that indicated they were at least slightly social learning minded. Even better, 30% of these teachers had outcomes that indicated that they were social learners at heart. This is a positive finding given the potential benefits of social learning (De Bruijn, 2008; Dresner & Worley, 2006; Gellert, 2003; Goodyear et al., 2004; Harasim et al., 1995; Lieberman & Wood, 2002a, 2002b). Since, 60% of the PD activities are influenced by contacts with, amongst others, colleagues, it is imperative that teachers are willing to learn with and from each other (Lovett & Cameron, 2011). This is in line with the finding that teachers indicate that social learning (or networked learning) is a valuable addition to the traditional forms of PD (van Amersfoort et al., 2011). Thus, suggesting social learning as a form of PD suits the majority of the teachers, making it a promising form of PD next to “standard” courses and seminars.

When considering the differences in average teacher scores on the five discerning factors, we found no differences between scores on factors 3, 4 and 5. However, the teachers had lower (still positive) preferences and attitudes towards the aspects of factor 2 (belief in being able to learn from colleagues, and preference for learning with colleagues). Learning from colleagues was less preferred (74.5% of the teachers had a score above “Neutral”), for instance, than PD through collaboration in general (94.5% of the teachers had a score above “Neutral”). This “learning from colleagues” factor might then still warrant more attention. The fact that outcomes of social learning are not always obvious might be to blame, for instance, for the fact that not all teachers strongly belief that “learning from colleagues and in practice enhances your knowledge more than traditional PD activities such as courses or reading a book”.

The higher scores on the collaboration factor might also indicate that the teachers do not want to collaborate (only) with their direct colleagues, but that they prefer to learn from others in general. This necessitates larger learning networks or communities, which enhance the change of information flow and the creation of new knowledge. More collaboration within and between schools might spark more innovation and enlarges social capital. However, only 54.5% of the teachers indicated to already be part of a learning network or community. Since the findings indicate that the teachers had preferences and positive attitude towards social learning (which does not necessary has to take place in learning networks or communities), stimulation and facilitation of the formation of collaboration is promising and advisable for successful PD.

There were clear, significant differences between scores on factor 1 and on the other four factors. It is promising that teachers attained low scores on factor 1 (only 31.8% of the

teachers had a score above “Neutral”), because the aspects comprising this factor are counteractive to social learning.

Several individual items of the quiz warrant separate consideration. The teachers indicated, for instance, a strong preference for knowing exactly how they were going to learn during their PD (74.5% had a score above “Neutral”). In social learning, the “how” of the learning often is opaque, and there is no predefined path that has to be followed. Social learning may occur informal, spontaneously and unplanned, embedded in daily practice (Villegas-Reimers, 2003), or it can be more intentional, if meetings and activities are planned ahead (such as in learning networks or communities). However, one thing that is clear in the process of social learning is that the learning occurs with and from each other, with the spreading of knowledge from one person to another (Reed et al., 2010). Even though this process is hard to plan ahead, the current study implies that teachers wanting to engage in social learning need guidance to support this preference and to follow their own learning path, without exactly knowing how this will unfold.

Almost all of the teachers indicated that they liked to collaborate with others to enhance their knowledge (94.5% was above “Neutral”), and that they asked others for advice if they had problems (92.7% was above “Neutral”). These aspects are core features of social learning and showed that social learning is a form of PD that would suit teachers well. Still, the working environment of teachers does not always facilitate them in building extensive networks, and many teachers still operate (innovations in) their classrooms in very autonomous ways.

The finding that 80.9% of the teachers indicated to be willing to try out this “new form” of PD without knowing the gains is encouraging. At the moment, social learning is often not officially considered PD by management or by other assessors of PD. In order to stimulate social learning, this is an important policy issue that needs to be addressed.

Another aspect that stood out was the strong wish of teachers to decide for themselves which topic they were going to learn about. This aspect relates to autonomy, and 82.7% of the teachers at least slightly agreed that they wanted to decide what topics would be subject of their PD, instead of having this to be a decision made by management. This form of autonomy is one of the key aspects in social learning. Autonomy is related to motivation (Ryan & Deci, 2000) and therefore, networked learning might enhance the motivation for PD. Being in charge of their own PD enhances productivity (Wilson & Berne, 1991) and therefore being able to decide what topics will be part of PD can lead to more learning. It is also highly valued by teachers that the process of social learning can be determined largely by the social learners themselves. This enhances the success, and the gaining, of social learning.

No differences between the sectors were found for social learning mindedness and on the factors, thus overall, the teachers from the various sectors of employment were equally social learning minded and had the same pattern of scores over the factors. This finding seems to disconfirm earlier findings by O’Brien et al. (2008), but in that study, it was reported that the primary school staff had more knowledge of the project, which could have influenced the results to show that teachers of primary schools had higher expectations of the benefits of networked learning. This showed that the found preferences and attitudes were not different for teachers employed in various educational sectors and that the degree of social learning mindedness in general was the same for all the teachers.

Limitations and future research

All included teachers took part of PD projects that were aimed at PD. Thus, these teachers were somehow involved in PD which might have led to more motivation for social learning, leading to possible bias. An additional bias was that the moment of administration of the Quiz was not the same for all teachers. Most teachers were at the start of social learning, however, some teachers were already more experienced. This inequality is not solved easily because there will not be a group of teachers at a school that all have the same backgrounds, at the same moment, in the same practice.

Another limitation was that the projects they were involved in, differed from each other. Therefore, the emphasis on social learning differed. For instance, in primary education, the focus was on the formation of learning networks, whereas in higher general secondary education (Dutch: HAVO) and pre-university education (Dutch: VWO), the teachers were classified in teams based on educational level and age-group of the students. This leads to subtle differences in the approach of social learning and the description of the Quiz (see Method section). However, without participation in the projects, teachers could not be approached. No (school) context is the same and no PD project is the same. Controlling of external conditions is hardly possible, and not desirable, and therefore, this problem will not readily be solved.

Further, we included teachers of various educational sectors but not all. Therefore, a larger, and more various sample of teachers should be used in order to verify the findings, especially, the underlying factors. This is needed to study whether these findings can be applied to all teachers.

In sum, the current study showed that the teachers were social learning minded and that social learning is a promising form of PD. Most of all, the teachers liked to explain and share their knowledge, which is probably a common trait of teachers. They want to have control over their PD as indicated by, for instance, their preference to depict the topics where they were going to learn about. Additionally, they prefer collaboration that leads to PD, of which social learning is one form. The teachers had the lowest preferences and attitudes towards aspects of PD that counteract social learning. This indicates that they had lower preferences for aspects that are part of traditional forms of PD than for aspects that are related to social learning. All taken together, social learning might be a suitable form of PD for teachers.

References

- Baarda, D. B., De Goede, M. P. M., & Van Dijkum, C. J. (2007). *Basisboek Statistiek met SPSS: Handleiding voor het verwerken en analyseren van en rapporteren over (onderzoeks)gegevens (derde druk)*. [Basisbook SPSS Statistics: Guide for processing, analyzing and reporting on (research) data (3rd ed.)]. Groningen: Noordhoff Uitgevers bv.
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33, 3–15.
- Boud, D., & Hager, P. (2012). Re-thinking continuing professional development through changing metaphors and location in professional practices. *Studies in Continuing Education*, 34, 17–30.
- Cross, R. L., & Parker, A. (2004). *The hidden power of social networks: Understanding how work really gets done in organizations*. Boston, MA: Harvard Business School Press.
- Cross, R. L., Parker, A., & Sasson, L. (2003). *Networks in the knowledge economy*. Oxford: University Press.
- Darling-Hammond, L., Chung-Wei, R., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the U.S. and abroad*.

- Retrieved September 7, 2009. National Staff Development Council. Retrieved from <http://www.nsd.org/news/NSDCstudy2009.pdf>
- De Bruijn, H. C. (2008). *De succesfactoren van een kennisnetwerk* [The success factors of a knowledge network]. Amsterdam: VU.
- De Jong, J. P. J., & Den Hartog, D. N. (2005). Determinanten van innovatief gedrag: Een onderzoek onder kenniswerkers in het MKB [Determinants of innovative behavior: A study of knowledge workers in SMEs]. *Gedrag & Organisatie: Tijdschrift voor sociale, arbeids- en organisatie-psychologie*, 18, 235–259.
- Doornbos, A. J., Simons, R., & Denessen, E. (2008). Relations between characteristics of workplace practices and types of informal work-related learning: A survey study among Dutch Police. *Human Resource Development Review*, 19, 129–151.
- Dresner, M., & Worley, E. (2006). Teacher research experiences, partnerships with scientists, and teacher networks sustaining factors from professional development. *Journal of Science Teacher Education*, 17, 1–14.
- Duguid, P. (2005). The art of knowing: Social and tacit dimensions of the community of practice. *The Information Society*, 21, 109–118.
- Earl, L., & Katz, S. (2007). Leadership in networked learning communities: Defining the terrain. *School Leadership and Management*, 27, 239–258.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage.
- Gellert, U. (2003). *Researching teacher communities and networks*. *ZDM*, 35, 224–232.
- Goodyear, P., Banks, S., Hodgson, V., & McConnel, D. (2004). *Advances in research on networked learning*. Norwell, MA: Kluwer Academic.
- Harasim, L., Hiltz, R., Teles, L., & Turoff, M. (1995). *Learning networks: A field guide to teaching and learning online*. Cambridge, MA: MIT Press.
- Hargreaves, A., & Fullan, M. (2012). *Professional Capital: Transforming teaching in every school*. New York and London: Teachers College Press.
- Hodkinson, H., & Hodkinson, P. (2005). Improving schoolteachers' workplace learning. *Research Papers in Education*, 20, 109–131.
- Hunzicker, J. (2011). Effective professional development for teachers: A checklist. *Professional Development in Education*, 37, 177–179.
- Katz, S., & Earl, L. (2006). Creating knowledge: Evaluating networked learning communities. *Education Canada*, 47, 34–37.
- Lieberman, A., & Pointer Mace, D. (2010). Making practice public: Teacher learning in the 21st century. *Journal of Teacher Education*, 61, 77–88.
- Lieberman, A., & Wood, D. (2002a). From network learning to classroom teaching. *Journal of Educational Change*, 3, 315–337.
- Lieberman, A., & Wood, D. (2002b). Untangling the threads: Networks, community and teacher learning in the National Writing Project. *Teachers and Teaching: Theory and practice*, 8, 295–302.
- Lovett, S., & Cameron, M. (2011). Schools as professional learning communities for early-career teachers: How do early career teachers rate them? *Teacher Development*, 15, 87–104.
- Moolenaar, N. (2010). *Ties with potential: Nature, antecedents, and consequences of social networks in school teams*. Amsterdam: Universiteit van Amsterdam.
- O'Brien, M., Varga-Atkins, T., Burton, D., Campbell, A., & Qualter, A. (2008). How are the perceptions of learning networks shaped among school professionals and headteachers at an early stage in their introduction? *International Review of Education*, 54, 211–242.
- Reed, M. S., Evelyn, A. C., Cundill, G., Fazey, I., Glass, J., Laing, A., & Stringer, L. C. (2010). What is social learning? *Ecology and Society*, 15, r1.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- van Amersfoort, D., Korenhof, M., Moolenaar, N., & De Laat, M. (2011, August–September). *Exploring new horizons: Teacher professional development through networked learning*. Paper presented at the Conference of the European Association for Research on Learning and Instruction (EARLI), Exeter.
- Van Berkum, M. (2009). *Ik netwerk, dus ik ben: Een explorerend onderzoek naar netwerkmanagement* [I network, therefore I am: An exploratory study on network management] (Unpublished master's thesis). University Twente.

- Villegas-Reimers, E. (Ed.). (2003). *Teacher professional development: An international review of the literature*. Paris: UNESCO.
- Webster-Wright, A. (2009). Reframing professional development through understanding authentic professional learning. *Review of Educational Research*, 79, 702–739.
- Wenger, E., Trayner, B., & De Laat, M. (2011). *Promoting and assessing value creation in communities and networks: A conceptual framework*. Heerlen: Open Universiteit, Ruud de Moor Centrum.
- Wilson, S. M., & Berne, J. (1991). Teacher learning and the acquisition of professional knowledge: An examination of research on contemporary professional development. *Review of Research in Education*, 24, 173–209.